

Animation: Diffusion Through Cell Membranes

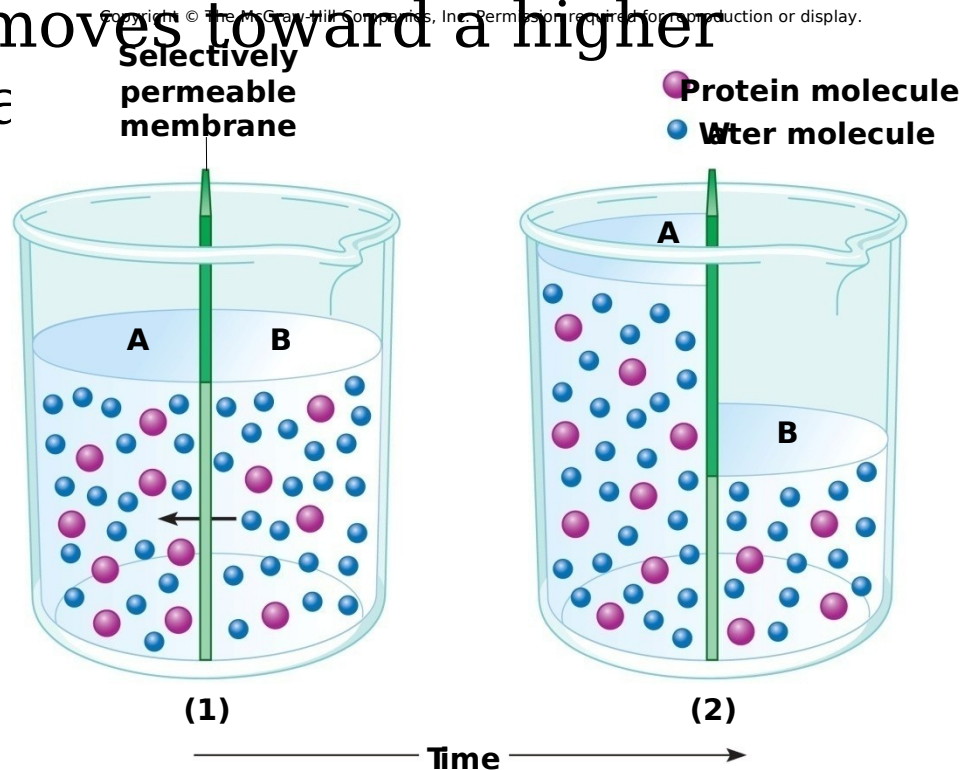
Diffusion Through Cell Membranes



<http://genmed.ucsf.edu/animations/>

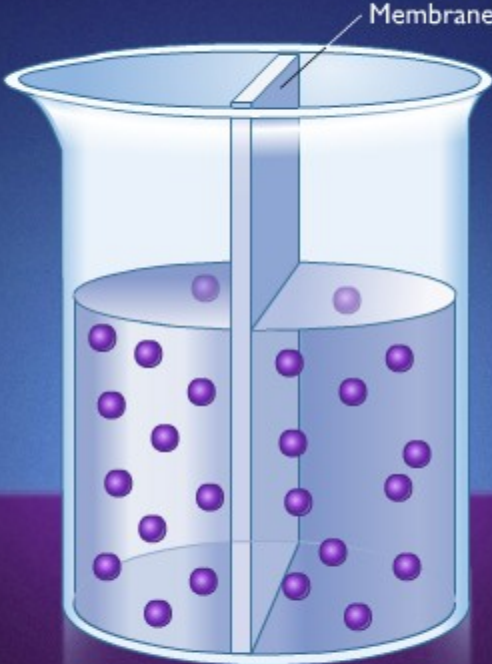
Osmosis

- Movement of water through a selectively permeable membrane from regions of higher concentration to regions of lower concentration
- Water moves toward a higher concentration



Animation: How Osmosis Works

McGraw Hill **How Osmosis Works**



The diagram shows a beaker divided by a vertical membrane. The beaker is partially filled with a light blue liquid. The membrane is labeled 'Membrane'. Purple spheres, representing solute molecules, are distributed throughout the liquid on both sides of the membrane. The concentration of purple spheres is higher on the left side than on the right side. The beaker is set against a dark blue background.

Membrane

Play Pause Audio Text

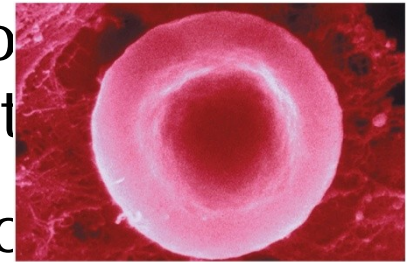
Diffusion is the net movement of molecules down a concentration gradient. This process allows small molecules such as oxygen and carbon dioxide to cross the plasma membrane.

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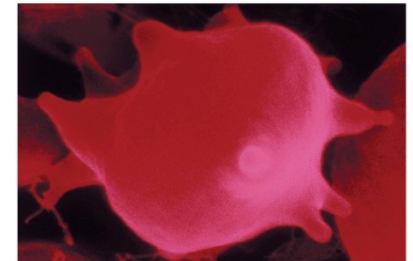
Osmosis and Osmotic Pressure

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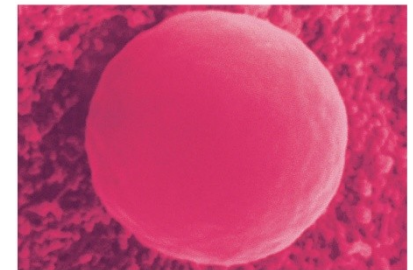
- **Osmotic Pressure** – ability of osmosis to overcome enough pressure to move a volume of water
- Osmotic pressure increases as the concentration of nonpermeable solutes increases
 - **Isotonic** – same osmotic pressure
 - **Hypertonic** – higher osmotic pressure (water loss)
 - **Hypotonic** – lower osmotic pressure (water gain)



(a)



(b)



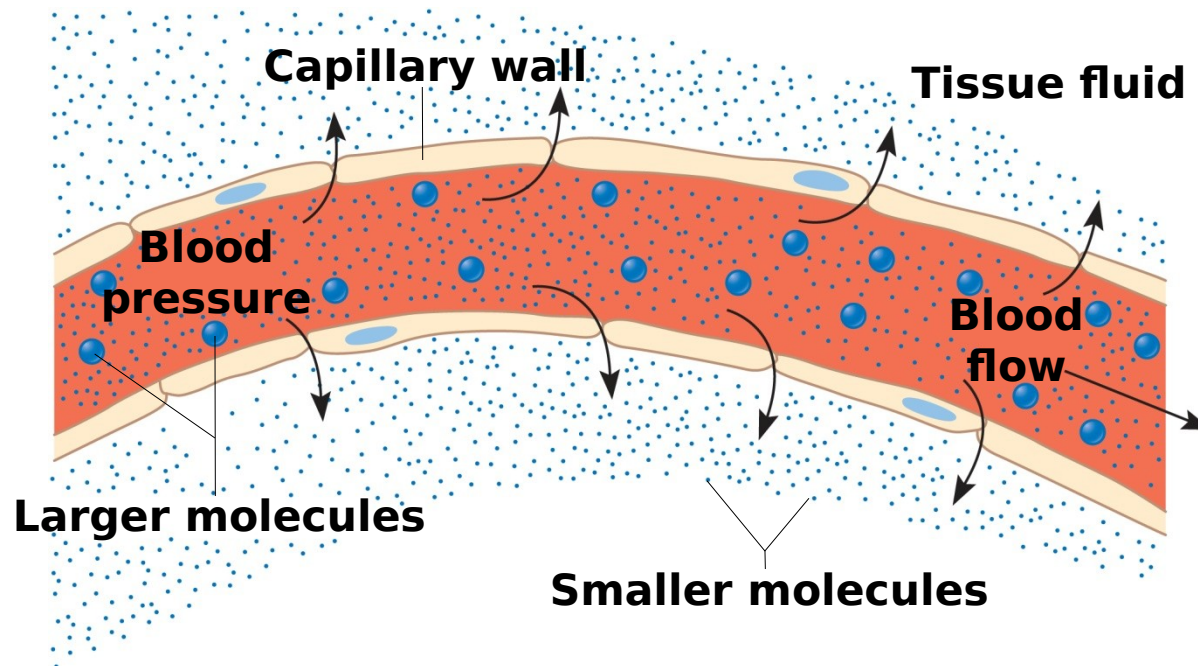
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Filtration

Smaller molecules are forced through porous membranes
Hydrostatic pressure important in the body
Molecules leaving blood capillaries

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Active Transport

- Carrier molecules transport substances across a membrane from regions of lower concentration to regions of higher concentration
- Sugars, amino acids, calcium ions, potassium ions, etc.

